

(PCT Article 36 and Rule 70)

Date of submission of the demand	Date of completion of this report
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## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/EP2004/011382

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rule 12.3 and 23.1(b))
- ☐ publication of the international application (Rule 12.4)
- ☐ international preliminary examination (Rule 55.2 and/or 55.3)
2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:
- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-9 \_\_\_\_\_ as originally filed/furnished
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the claims:
- nos. \_\_\_\_\_ as originally filed/furnished
- nos.\* \_\_\_\_\_ as amended (together with any statement) under Article 19
- nos.\* 1-7 \_\_\_\_\_ received by this Authority on 18.07.2005 with letter of 14.07.2005
- nos.\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☒ the drawings:
- sheets 1/1 \_\_\_\_\_ as originally filed/furnished
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- sheets\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, nos. \_\_\_\_\_
- ☐ the drawings, sheets/figs \_\_\_\_\_
- ☐ the sequence listing (*specify*): \_\_\_\_\_
- ☐ any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

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Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement		
1.	Statement		
	Novelty (N)	Claims <u>1-3</u>	YES
		Claims <u>4-7</u>	NO
	Inventive step (IS)	Claims _____	YES
		Claims <u>1-7</u>	NO
	Industrial applicability (IA)	Claims <u>1-7</u>	YES
		Claims _____	NO
2.	Citations and explanations (Rule 70.7)		
1	Reference is made to the following documents:		
	D1: US-A1-2001023578		
	D2: EP-A-1331448		
	D3: EP-A-0501313		
	D4: WO-A-03062618		
	D5: US-A-6082092		
	D6: DE-A-19921981		
2	Irrespective of the lack of clarity mentioned in Box VIII, the subject matter of claim 1 does not involve an inventive step (PCT Article 33(3)) and therefore the requirements of PCT Article 33(1) are not satisfied.		
2.1	Document D1 is considered the prior art closest to the subject matter of claim 1 and discloses (the references between parentheses refer to that document) a method for compensating variations in the fuel composition in a gas turbine system with two burner stages (3, 5) that are operated in parallel, the fuel supply to two burner stages being regulated in response to variations in the		

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	<p>fuel composition.</p> <p>The subject matter of claim 1 differs therefrom in that when the fuel supply is regulated, the fuel split between the burner stages is maintained at a target value.</p> <p>Thus, essentially, the operating characteristics of the two burners are kept constant, thereby suppressing combustion variations and avoiding increased emissions when compensating variations in the fuel composition.</p> <p>It is, however, known <i>per se</i> to regulate the fuel split between two different burners so that a specific distribution is maintained. This principle is applied, for example, in D2 (see paragraphs 0031 and 0037). It therefore cannot be considered inventive to include a measure that is common in the art in a method for compensating variations in fuel composition as per D1. Consequently, claim 1 does not satisfy the criterion in PCT Article 33(3) and is therefore not allowable (PCT Article 33(1)).</p> <p>3 Irrespective of the lack of clarity mentioned in Box VIII, the subject matter of claim 4 lacks novelty (PCT Article 33(2)) and therefore the requirements of PCT Article 33(1) are not satisfied.</p> <p>3.1 In relation thereto, D1 discloses a regulating</p>

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	<p>device for regulating the fuel supply in a gas turbine system with two burner stages that are operated in parallel, a fuel regulating valve (19a, 19b) for each burner stage and a regulator (27), which comprises the regulator characteristic values that are associated with the fuel valves. The regulator or the control unit (27) brings together the functions of the analyser, the unit for calculating the fuel composition (i.e. the calorific value in analogy to the Wobbe Index) and the updating unit, which are used to update the regulator characteristic values of the regulating valves that are associated with the two different burner stages using the determined calorific value (D1, §§0009, 0013, 0019, 0020, 0026 and 0027-0038, claim 1).</p> <p>A similar argument can also be raised based on documents D3 and D4.</p> <p>The subject matter of independent claim 4 thus lacks novelty (PCT Article 33(2)).</p> <p>4 The subject matter of one or more of the dependent claims is also disclosed by documents D1-D6. Main stages and pilot stages are disclosed in D1-D3, the Wobbe Index is disclosed in D4 and D5 and, as has already been mentioned, is regarded as a characteristic value analogous to the determining of the calorific value mentioned in D1. The Wobbe Index is actually nothing more than the calorific value of a fuel divided by the root of the product</p>

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	<p>of the absolute temperature multiplied by the specific density of the fuel (see D5). The concept specified in claim 7 of a specific arrangement of the components can be taken from D1 or D6 (column 4, line 50 ff.). Dependent claims 2, 3 and 5-7 are therefore considered to lack novelty or inventive step.</p> <p>5      The invention is industrially applicable in the field of gas turbines (PCT Article 33(4)).</p>

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**Box No. VII**      **Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

Contrary to PCT Rule 5.1(a)(ii), the description does not cite documents D1-D4 or indicate the relevant prior art disclosed therein.

## Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

- 1 Claims 1 and 4 do not meet the requirements of PCT Article 6 because the subject matter for which protection is sought is not clearly defined in the characterising parts of the claims. Both claims attempt to define the subject matter by the result to be achieved (claim 1: "that when the fuel supply is regulated, the fuel split between the burner stages is maintained at a target value" and claim 4: "the regulator being designed such that the fuel split between the burner stages is maintained at a target value."). Thus in both cases only the problem to be solved is indicated.

As regards claim 1, no detailed method steps are indicated which characterise the method as such. Such detailed steps are provided on page 8, lines 22-26 of the description and should have been included in the method claim, since they are considered to be essential to the method and therefore to the definition of the invention. Since independent claim 1 does not contain those method steps, it does not meet the requirement of PCT Article 6 in conjunction with PCT Rule 6.3(b) that each independent claim must include all the technical features essential to the definition of the invention.

Although claim 4 defines the other technical features of the regulating device that are needed



**Box No. VIII**      **Certain observations on the international application**

to achieve the result, for the purposes of clarity and in order to provide clear delimitation over the searched prior art a reference to claim 1 should have been added, for example "the regulator being suitable for implementing a method as per claim 1", since it does not appear possible to define the regulator in terms of its technical features.